Release notes for ENDF/B Development n-071_Lu_176 evaluation

April 26, 2017

- `psyche` Warnings:

  1. Non-threshold reaction with Q value differing from PSYCHE's expectations
     FILE 3 / SECTION 103 / THE CALCULATED Q 1.06155E+06 DISSAGREES WITH THE GIVEN Q 7.62500E+05 (0): Iffy Q

     ```
     FILE  3
        SECTION 103
                   THE CALCULATED Q  1.06155E+06 DISSAGREES WITH THE GIVEN Q  7.62500E+05
     ```

- `fudge-4.0` Warnings:

  1. Missing a channel with a particular angular momenta combination
     resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel

     ```
     WARNING: Missing a channel with angular momenta combination L = 0, J = 5.5 and S = 5.5 for "capture"
     ```

  2. Potential scattering hasn't converted, you need more L's!
     resonances / resolved (Error # 1): potentialScatteringNotConverged

     ```
     WARNING: Potential scattering hasn't converged by L=0 at E=102.0 eV, xs[0]/xs[0]=100.0% > 0.1%
     ```

- `fudge-4.0` Errors:

  1. Calculated and tabulated Q values disagree.
     reaction label 10: n[multiplicity:'2'] + Lu175 (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -7466373.963989258 eV vs -6.34e6 eV!
     ```

  2. Calculated and tabulated Q values disagree.
     reaction label 11: n[multiplicity:'3'] + Lu174 (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -15133107.20059204 eV vs -1.415e7 eV!
     ```

  3. Calculated and tabulated Q values disagree.
     reaction label 12: Lu177 + gamma (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: 5894599.838012695 eV vs 7.072e6 eV!
     ```

  4. Calculated and tabulated Q values disagree.
     reaction label 13: H1 + Yb176_s (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: -289272.4971923828 eV vs 7.625e5 eV!
     ```

  5. Calculated and tabulated Q values disagree.
     reaction label 14: He4 + Tm173_s (Error # 0): Q mismatch

     ```
     WARNING: Calculated and tabulated Q-values disagree: 7339527.674987793 eV vs 8.491e6 eV!
     ```

- `njoy2012` Warnings:

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

   ```
    ---message from conver---cannot do complete particle production for mt= 16
                          only mf4/mf5 provided
   ```

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

   ```
    ---message from conver---cannot do complete particle production for mt= 17
                          only mf4/mf5 provided
   ```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
   groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

   ```
    ---message from conver---cannot do complete particle production for mt= 91
                          only mf4/mf5 provided
   ```